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(2% or 3% or 4% or 5%) same centralite same nitrocellulose	17

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<u>L10</u>	(2% or 3% or 4% or 5%) same centralite same nitrocellulose	17	<u>L10</u>
<u>L9</u>	(2% or 3% or 4% or 5%) same stabilizer same nitrocellulose	46	<u>L9</u>
<u>L8</u>	L5 not L7	7	<u>L8</u>
<u>L7</u>	L5 and ((149/\$)!.CCLS.)	23	<u>L7</u>
<u>L6</u>	L5 and ((280/\$)!.CCLS.)	0	<u>L6</u>
<u>L5</u>	stabilizer and burning and l1	30	<u>L5</u>
<u>L4</u>	L3 and l1	1	<u>L4</u>
<u>L3</u>	opacifier and stabilizer and modifier	598	<u>L3</u>
<u>L2</u>	coolant same opacifier same stabilizer same modifier	0	<u>L2</u>
<u>L1</u>	single adj base same nitrocellulose	136	<u>L1</u>

**WEST**

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L8: Entry 3 of 7

File: USPT

Aug 25, 1987

DOCUMENT-IDENTIFIER: US 4688465 A

TITLE: Method and apparatus for production of cartridged propellant charges for barrel weapons

Brief Summary Text (3):

The propellant powder for barrel weapons is usually in the form of grains, flakes or strips which lie loose in a case or bag. Higher charge weights within the same limited volume can therefore be accomplished by compaction of the loose propellant powder. An increase of the energy content in the propellant charge for a given gun must however be combined with a simultaneous adaption of the burning properties of the propellant powder so that the gas pressure obtained in the gun does not exceed the maximum permissible internal pressure Pmax for the barrel and mechanism. The propellant powder can be compacted directly in the case or cartridge without the powder grains losing their character of free grains on that account. In moderate compaction the powder is therefore combusted in essentially the same manner as if it had consisted of loose powder.

Brief Summary Text (13):

It has also been found that a still better result is obtained if the powder is compacted at an elevated temperature relative to room temperature and both case and case support, plunger and any centre pin or drift which is to make room for an ignition screw may then well be somewhat warmer than the powder itself. A powder which has been heated to approx. 70.degree. C. and which is compacted in a 90.degree. C. warm case thus requires at most half of the compaction force which is needed for a 20.degree. C. powder compacted in a case at room temperature. Naturally no temperatures in the vicinity of the implosion or self-ignition temperature of the powder can be considered, nor may the temperature become so high that stabilizers included in the powder are consumed. It has thus been established that powder temperatures of between 20-90.degree. C. are suitable for compaction of granular powder whereas surrounding parts such as case, case support, plunger and possible centre pin should not have a temperature in excess of 100.degree. C.

Brief Summary Text (15):

Because powders and particularly so-called NC powders (nitrocellulose powder or single-base powder) are hygroscopic both the heating and the compaction and the cooling of the compacted powder must take place in a conditioned or closed atmosphere. This naturally involves certain complications but does not give rise to unsurmountable problems.